

March 17, 2006

RE: Final Environmental Assessment for Russell Olsen's Proposed Paveco Gravel Pit

Dear Reader:

The public comment period on the Draft environmental assessment (EA) for the proposed Paveco Gravel Pit ended on April 8, 2005. DEQ received numerous comments on the Draft EA. The enclosed Final EA includes responses to comments and changes in and additions to text of the Draft EA. For convenience, the comments have been grouped into similar categories and paraphrased as necessary.

If any person wishes to challenge DEQ on this Final EA, he or she may do so as follows. The Montana Environmental Policy Act, which provides for the legal authority and basis for the preparation of EA's and environmental impact statements by state agencies, states at 75-1-201(6), MCA: "A challenge to an agency action under this part may only be brought against a final agency action and may only be brought in district court or in federal court, whichever is appropriate. Any action or proceeding challenging a final agency action alleging failure to comply with or inadequate compliance with a requirement under this part must be brought within 60 days of the action that is the subject of the challenge."

DEQ has determined that Russell Olsen's Paveco application is in compliance with the provisions of the Opencut Mining Act and its pursuant rules, subject to some conditions of approval that are listed at the end of the Final EA. Therefore, DEQ has concurrently approved the Paveco application and issued the requisite mining permit. Regarding this approval, the Opencut Mining Act at 82-4-427, MCA provides: "(1) A person who is aggrieved by a final decision of the department under this part is entitled to a hearing before the board [of Environmental Review], if a written request is submitted to the board within 30 days of the department's decision. (2) The contested case provisions of the Montana Administrative Procedure Act, Title 2, chapter 4, part 6, apply to a hearing held under this section." Requests for a hearing under this provision must be submitted to: Secretary; Board of Environmental Review; P.O. Box 200901; Helena, MT 59620-0901.

The enclosed Final EA is also available at <http://www.deq.mt.gov/ea/opencut.asp>.

Please contact Rod Samdahl at 406-755-8985 (e-mail [rsamdahl@mt.gov](mailto:rsamdahl@mt.gov)) or me if you have any questions.

Sincerely,

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NH/nh

Enclosure

## FINAL ENVIRONMENTAL ASSESSMENT

PROPONENT: Russell Olsen SITE NAME: Paveco Site  
LOCATION: E½ NW¼, Sec 2, T29N, R21W COUNTY: Flathead

### TYPE AND PURPOSE OF ACTION:

The applicant proposes to permit a new, long-termed gravel pit to mine, crush, wash, stockpile, manufacture products and transport 170,000 cubic yards of sand and gravel from a 69-acre site located 6 miles north of Evergreen (see Map 1). The site would also be used to batch hot asphalt. The site is a cultivated alfalfa and grain field located near the junction of Pioneer and Helena Flats Road at 2960 feet, MSL. There is a historic schoolhouse on the SW corner of the intersection, which will not be disturbed. A post and pole company is located adjacent to the north of the proposed site. The applicant would reclaim the site to grassland with a 5-acre pond and areas outside the slopes of the pond could be farmed for grain. The pond portion of the site would be dug approximately 30 feet deep and would be reclaimed according to DEQ pond guidelines for a fishery and by smoothing out the remainder of the site and grading slopes to no steeper than 3:1, resoiling and reseed-ing to grass. The initial operation would disturb 25 acres in the NW corner, and would continue to expand south and eastward over the 20-year life of the mine. Final reclamation would be done by October 2025.

This environmental assessment (EA) is required under the **Montana Environmental Policy Act (MEPA)**. An EA functions to identify, disclose and analyze the impacts of an action, in this case operating a gravel pit on which the state must make a decision, so that an informed decision can be made. MEPA sets no environmental standards, even though it requires analysis of both the natural and human environment. This document may disclose many impacts that have no legislatively required mitigation measures or over which there is no regulatory authority. The state legislature has provided no authority in MEPA to allow DEQ or any other state agency to require conditions or impose mitigations on a proposed permitting action that are not included in the permitting authority and operating standards in the governing state law, such as the Opencut Mining Act, the Clean Air Act of Montana, or any other applicable state environmental regulatory law. Beyond that, a company may agree to voluntarily modify its proposed activities or accept permit conditions.

The state law that regulates gravel-mining operations in Montana is the **Opencut Mining Act**. This law and its approved rules place operational guidance and limitations on a project during its life, and provide for the reclamation of land subjected to opencut materials mining. This law requires that a reclamation bond, cash deposit or other financial instrument be submitted to the state to cover the complete costs of reclaiming the site to its approved, post-mining land use, if the permittee fails to reclaim the site as required by the law, the rules, and the permit.

The permit decision cannot be based upon the popularity of the project, but upon whether or not the proponent has met the requirements of the Opencut Mining Act, pursuant rules, and other laws pertaining to his proposed actions.

**COMMENTS RECEIVED ON DRAFT EA ARE CONSOLIDATED AND PARAPHRASED HERE:**

[aerial visual impacts](#)

[asphalt plant](#)

[airport safety](#)

[aquatic life](#)

[bald eagles](#)

[bull trout](#)

[causing fog](#)

[cumulative impacts](#)

[dumping waste](#)

[EIS needed](#)

[farm chemicals](#)

[grizzly bears](#)

[groundwater heating](#)

[health](#)

[hours of operation](#)

[hydrology](#)

[lifestyles](#)

[location bad](#)

[long range planning](#)

[noise](#)

[post and pole chemicals](#)

[property values](#)

[road oil](#)

[spill response](#)

[storm water permit](#)

This alphabetical listing of subjects is created as hyperlinks to help the reader go directly to the subject while reading the document in Microsoft Word. To use this list, hold down the Ctrl button and click on the word. You will be moved to the appropriate place in the document below. You may use the [Back to top](#) hyperlink at the end of those sections to return to this list at anytime.

- **COMMENT:** The Plan of Operation describes using road oiling for dust control. This is inappropriate in this area due to the close proximity to the underlying aquifer.

**RESPONSE:** Road oiling is an accepted technology used commonly throughout the Flathead Valley to control dust on city, county and private roads. Many gravel roads cross the valley in the area of this shallow aquifer, and road oiling with petroleum-based products as well as magnesium chloride and other products are used on them for dust control. Paveco would hire a licensed applicator to apply the dust suppressant using accepted procedures for the products. [Back to top](#)

- **COMMENT:** The federal government, through its Safe Drinking Water Act, considers mining to be a threat to our drinking water and so should the DEQ.

**RESPONSE:** The Opencut Program does not see the mining of sand and gravel as a threat to potable water supplies. The many safeguards written into Paveco's Plan of Operation, DEQ guidelines for fuel storage, DEQ policies on water monitoring, the DEQ inspection program, and other precautionary efforts in place are there specifically to protect surface and groundwater. To some people, the term "mining" may elicit the image of hard rock mining frequently associated with the use of chemicals and treatment of acid, none of which are found in sand and gravel mining. [Back to top](#)

- **COMMENT:** Mining will disturb farming soil that could release dust contaminated with pesticides such as dioxin, considered to be hazardous substances. DEQ should evaluate these soils for past farming practices to determine the content and concentrations of these potential toxins.

**RESPONSE:** The landowner has managed this tract for agricultural yield and has applied 2-4D to control broadleaf plants such as wild oats. Consultation with the Montana Department of Agriculture and the U.S. Environmental Protection Agency (EPA) indicates that this chemical and others like it are not long-resident in soils and are quickly photo- and bio-degradable. There would be no residue of these pesticide types that would be attached to soil particles and that might drift off site as soils are stripped ahead of mining.

Dioxin is not a pesticide, but is a long-lived hazardous substance that has been and is a contaminant found in pesticides such as 2-4D and 2-4-5T, the latter of which is no longer on the market. Consultation with the EPA indicates that the content of dioxin in 2-4D has decreased over time because of a change in how it is manufactured. Dioxin is also created by a) the burning of household or commercial garbage such as bleached paper products, other chlorinated organic compounds, and any other combination of materials containing carbon and chlorine, and b) at least historically, the combustion of

leaded gasoline by vehicles. According to EPA's website, backyard burning of household garbage is one of the largest sources of dioxin in the nation's environment. Thus, to the extent that this general area (perhaps the Flathead Valley at large) has been subject to a) burning of household and commercial garbage, b) the use of 2-4D and related pesticides in agricultural activities and for weed control by homeowners, and c) historic leaded gasoline combustion, dioxin is probably present in the general area. [Back to top](#)

- **COMMENT:** A Storm Water Discharge Permit is needed. Notice of Intent under the EPA's National Pollutant Discharge Elimination System permit process requires that the applicant verify it will not harm federally listed endangered species.

**RESPONSE:** Within the State of Montana (except on Indian Reservations), the federal EPA has delegated authority to the DEQ for NPDES-based storm water discharge permitting. Also, the U.S. Fish & Wildlife Service formally administers requirements under the federal Endangered Species Act (ESA). Consequently, the EPA and DEQ handle ESA-related issues differently as a part of the NPDES-based permit process.

If there were a storm water discharge to surface waters from this gravel pit and a DEQ discharge permit authorization was required, then under DEQ's permitting system endangered species issues may be checked depending on the type of discharge permit. This is formally performed under requirements related to the Montana Environmental Policy Act as opposed to the federal ESA. This check would typically be performed based on the DEQ storm water discharge permit for industrial or mining activities, but not for construction activities. As this pit reportedly will drain internally during its operational life, permit coverage under the DEQ's industrial or mining storm water discharge permits may not be necessary. The applicant must contact the DEQ Water Protection Bureau to help determine exactly what, if any, discharge permits may be necessary. [Back to top](#)

- **COMMENT:** Mining may damage the spawning habitat for the Bull Trout in the Flathead River.

**RESPONSE:** Operations conducted at this location will not cause any significant degradation of groundwater quality at or near the site. Effects on the water at this site will not affect the Flathead River, and thus will have no effect on the Bull Trout or its habitat. See SECTION 2. WATER QUALITY, QUANTITY, AND DISTRIBUTION below. [Back to top](#)

- **COMMENT:** Mining may have an impact on bald eagles who use this area for nesting and home range.

**RESPONSE:** There have been no reports of nesting sites on or near this tract of land. Typically, bald eagles use the entire river corridor as part of their range, and they become accustomed to industrial activities as long as they are not located very near to nests during mating and raising of chicks in the springtime. It is highly unlikely that this proposed gravel pit would impact bald eagles due to the lack of suitable habitat on the site and the nearby presence of residences, roads and commercial businesses. [Back to top](#)

- **COMMENT:** Grizzly bears have been reported west of the Flathead River and could be affected by this gravel pit.

**RESPONSE:** This agricultural field may be occasionally visited by grizzlies, but it is not an important part of their habitat. No dens were reported in this area and pet food, garbage and other attractants would not be kept in any significant quantities at this site. No effects on grizzlies are anticipated at this site. [Back to top](#)

- **COMMENT:** What are the potential impacts from the post and pole operation located on the north end of the proposed permit area?

**RESPONSE:** The post and pole operator, Glacier Forest Products, has stated that it has used only approved treatments for its wood products and has kept a clean operation over the 10 or so years it has been in business. The company uses copper naphthenate, a copper salt of naphthenic acid. Naphthenic acid is a complex natural mixture of fatty acids found in petroleum. It is a by-product of petroleum refining and has a variable composition. A typical copper naphthenate product such as Cuprinol, Wittox-C, and Osmose Cop-R-Nap would be about 19% copper naphthenate and 81% other ingredients. Composition of the copper naphthenate portion depends on the composition of the source petroleum. The naphthenic acids may contain such constituents as cyclopentylacetic acid, alkyl-substituted cyclopentylacetic acids, fused chains of cyclopentylacetic acids, cyclohexylacetic acids, cyclopentanoic acids, and various low-molecular-weight fatty acids. It may also be contaminated up to 25% with hydrocarbons such as benzene from the petroleum source. Glacier Forest Products uses a sawdust absorbent pad underneath a raised tank for treatment of the poles, and the company says it has never spilled any of the treatment solution and has never had to replace the sawdust. Pavco plans to use the site as part of its facility area as the post and pole business moves out. Any contaminated soils or material discovered during the cleanup will be collected and removed for off site disposal to protect water quality. [Back to top](#)

- **COMMENT:** There is no summary of findings under the Private Property Assessment Act in the DRAFT EA.

**RESPONSE:** Near the end of the DRAFT EA under the heading REGULATORY IMPACT ON PRIVATE

PROPERTY, a simple statement was included. This section has been revised and elaborated to be clearer and more explanatory. In addition, the Private Property Assessment Act (PPAA) findings that DEQ prepares as part of the final permit package are attached to this FINAL EA. Also, please note the following summary of the PPAA's objective and focus.

The PPAA, §§ 2-10-101, *et seq.*, MCA, provides that each state agency action "with taking or damaging implications" must be reviewed so that a determination can be made, among other things, as to the likelihood that a court would find that the agency action constitutes a taking or damaging. In the context of issuing mining permits, that simply means that a state agency must consider whether it is imposing such severe restrictions on the use of the proposed mine site that it might constitute a taking or damaging of the proposed mine site property and that of the prospective operator. Although other statutes or rules may require the state agency to take into consideration the impact of the agency action on neighboring property, that is not an issue addressed by the PPAA.

- **COMMENT:** Noise levels should be restricted so that off site decibel levels do not reach moderate or severe.

**RESPONSE:** Aesthetics, including noise, are not regulated with numerical standards under the Opencut Mining Act and regulations or other Montana or federal laws. However, the Act can require construction of soil berms and reasonable limitation of operating hours to mitigate visual and/or noise impacts to nearby neighbors. Normally these mitigation measures would be implemented if residents are within 500 feet to 1,000 feet of a major piece of equipment, such as the crusher, asphalt plant, etc. Paveco would create berms along the southeast and west sides of the mine area and some of the facility area. They would be seeded to grass and maintained for weeds, and would offer some sound absorption and deflection to mitigate noise impacts.

Backup alarms, the amount of light in a working yard and other annoyances to the public at large are required for safety of employees by the Occupational Health and Safety Administration or the Mine Health and Safety Administration of the federal government. Proposed mitigations include the soil berms and hours of operation. [Back to top](#)

- **COMMENT:** Hours of operation should be reduced from the 7:00 AM to 7:00 PM, Monday through Friday with an occasional increase to 7:00 AM to 10:00 PM including Saturdays as proposed.

**RESPONSE:** The hours proposed are the standard for operations such as this and are consistent with other operations in the area. [Back to top](#)

- **COMMENT:** There is plenty of gravel elsewhere so this mine is not needed at this site. This is the wrong place for another pit. Why should one individual benefit at the expense of all others?

**RESPONSE:** The Opencut Mining Act does not include any kind of standard or requirement regarding the current "sufficiency" of gravel mines that can or must be applied to gravel mine permit decisions by DEQ. Also, the DEQ has no authority under the Act to deny an application based upon character, fit, appropriateness, aesthetics or similar subjective standards. Furthermore, the Opencut Mining Act has no standard or requirement concerning who will and will not benefit from a proposed project. If the land is zoned such that this activity is allowable, a person or company may pursue an opencut mining permit under the Act and rules. [Back to top](#)

- **COMMENT:** This permit should be denied because of the visual impacts for passengers of aircraft arriving at the airport. See the attached aerial photos of this area.

**RESPONSE:** The aerial shown of the site is a close-up taken at a low altitude from directly above the site. This view would be considerably outside normal air traffic patterns for commercial aircraft, particularly of incoming flights. Further, nearly every populated area or city and town in the country has similar industrial areas designated for sand and gravel and quarrying operations, sewage lagoons and landfills, and other commercial developments or facilities, all visible from the air. In any case, DEQ has no authority under the Opencut Mining Act to deny an application for a gravel mine on this basis. [Back to top](#)

- **COMMENT:** Will the pond dug here create an attractive nuisance to migratory waterfowl such that their flight patterns will cause a hazard to commercial traffic for Glacier International Airport? This site is within the 2-mile buffer zone surrounding the airport.

**RESPONSE:** There is the potential that the proposed pond associated with this proposed gravel mine could be a risk factor in this regard. This is a complex issue, because there are many habitat and waterfowl behavior factors that are important in assessing risk to aircraft in this area. Please see the text of the EA in Section 10 for discussion of this issue. [Back to top](#)

- **COMMENT:** With the coming of more residential, commercial and industrial developments in this low-lying area, we think long range planning is needed to protect resources.

**RESPONSE:** The DEQ agrees. However, the proper venue for this is through the county land use planning and zoning processes. The proposed Paveco operation has received zoning clearance from the county. DEQ's authority under the Opencut Mining Act does not include mediating or resolving long-range, land-use planning issues. [Back to top](#)

- **COMMENT:** This asphalt plant could cause fog and clouds to form over Glacier International Airport causing a hazard to incoming and outgoing aircraft.

**RESPONSE:** The DEQ has not been made aware of any substantial atmospheric modification as a result of operation of asphalt plants. While there can be a minor plume of steam emitting from the plant, it usually dissipates quickly and it is unlikely that a cloud or fog could form which is large enough to become an impediment to aircraft in the area. [Back to top](#)

- **COMMENT:** What will the cumulative effects be from this gravel pit when there are three others closely located nearby?

**RESPONSE:** The DEQ recognizes there is or may be a potential for increased effects when there are several operations in close proximity to one another. We would expect to see an increase in dust, odor, light, traffic and noise in the local area when some of these operations operate simultaneously. However, each of the individual permits is granted on its own merits and each is required to comply with dust and emissions standards placed upon it. If some applicable standard for the quantity or quality of water would be violated due to identified cumulative impacts, DEQ could take action to modify or deny a permit application to preclude the violation. For cumulative impacts on groundwater, please see SECTION 2. WATER QUALITY, QUANTITY, AND DISTRIBUTION below. [Back to top](#)

- **COMMENT:** Dust will settle over our homes from this and the other pits in the area. Please deny this permit.

**RESPONSE:** There would be an increase in emissions of particulate matter as a result of this operation. However, the amount of allowable dust is regulated. The DEQ Air and Waste Management Bureau (AWMB) sets opacity limitations on crushing/screening operations and requires them to perform a method 9 (opacity) test. The AWMB also conducts inspections to ensure that all sources comply with their permits (all permit limitations and conditions). The AWMB does not, however, require this industry (portable crushing/screening facilities which are considered minor sources of emissions by industrial standards and have potential emissions of less than 100 tons per year of any pollutant) to conduct any continuous emissions monitoring. The source is required to comply with both state and federal ambient air quality standards.

The DEQ Opencut Mining Program through the Plan of Operation form that all applicants must fill out and submit includes some general requirements for dust control. Paveco's Plan of Operation in its permit application states: "Dust will be controlled by water truck, oiling,, or paving of haul roads. Any crushers or screening plants would be equipped with spray bars for dust control." This is an acceptable response, and thus, there is no dust-related basis to deny this permit application. [Back to top](#)

- **COMMENT:** This proposed operation is an intrusive activity that negatively affects our lifestyles in this residential area.

**RESPONSE:** DEQ has no authority to deny an application based upon character, fit, appropriateness, aesthetics or similar subjective standards. We understand the potential impacts of this proposal on people's lifestyles. We did explain the impacts as we see them from an external, statutory perspective, and we acknowledge that there are varying degrees of perceived effects depending upon the individuals affected. The role of DEQ in discussing aesthetics in this EA is to generally describe and compare impacts, not to fully mitigate them. The most significant item we can control in terms of reasonable mitigation of aesthetics and the impacts on nearby residences is the hours of operation. We have placed hours of operation on this permit that we think are reasonable. [Back to top](#)

- **COMMENT:** This mine and asphalt plant will negatively affect our health.

**RESPONSE:** Regarding the mine in general, please see the response above on the comment about dust. Regarding the asphalt plant, the Air and Waste Management Bureau (AWMB) requires permits for asphalt plants that have a potential to emit more than 15 tons per year (TPY) of any airborne pollutant, other than lead (Montana Rules - ARM 17.8.743(1)(b)). The lead permitting threshold is 5 TPY for new sources and 0.6 TPY for modified sources (ARM 17.8.743(1)(a)).

The AWMB writes permits for asphalt plants. Generally, the AWMB establishes permit limitations on facility production and/or hours of operation of the equipment to minimize emissions. The use of such limitations to regulate the criteria pollutants (total particulate matter (PM), particulate matter with an aerodynamic diameter of 10 microns or less (PM10), oxides of nitrogen (NOx), volatile organic compounds (VOC), carbon monoxide (CO), and oxides of sulfur (SOx)) also



minimizes the amount of hazardous air pollutant (HAP) emissions. The facility used may also use pollution controls that could further reduce emissions, and pollution control equipment may be specified as an operational requirement in the permit.

The amount of HAP's from an asphalt plant can be calculated by using the U.S. Environmental Protection Agency's emission factors for batch mix and drum mix asphalt plants (currently AP-42, Table 11.1-9 through Table 11.1-16). Using these tables, the calculation of HAP's is based upon the amount of product a facility is allowed to produce and the method through which the product is generated.

Montana's standards for acceptable emissions are health-based standards and comply with federal guidelines. Asphalt plants that are permitted with the state are permitted in the manner described above and typically generate relatively small amounts of HAP's in relation to the corresponding major source threshold. The major source threshold for HAP's in the Federal Clean Air Act, section 112(a)(1), is defined as 10 tons per year or more of any HAP's or 25 tons per year or more of any combination of HAP's.

The operator is required to meet both the testing and operational requirements of his air quality permit. AWMB may require additional testing. The potential penalty for a violation is \$10,000 per day per violation. AWMB performs inspections of these facilities and may initiate enforcement action on those facilities that are in violation of the air quality rules and standards contained in their air quality permits.

Water quality issues are discussed elsewhere in this document. [Back to top](#)

- **COMMENT:** This mine will devalue our property.

**RESPONSE:** Typically, the taxable value of property surrounding a newly-opened gravel pit is not affected. However, the asking price and the number of individuals who would buy property next to a pit are probably negatively affected. DEQ acknowledges that short-term sales of land near active mining can be adversely affected, but we have no statutory authority to preserve property values. DEQ does have statutory authority to preserve taxable value, which we view as that value associated with long-term, reclaimed land following reclamation. [Back to top](#)

- **COMMENT:** House Bill 591 may allow the county to define this area as residential, thereby disallowing gravel pits and asphalt plants. There is a Neighborhood Plan being processed that shows we consider this area to be residential. The Neighborhood Plan allows only existing businesses.

**RESPONSE:** The Flathead County Planning and Zoning office signed a Zoning Compliance form dated January 26, 2005 that states the site was not zoned. Once a permit application has been submitted with a signed zoning form from the county, we must accept the zoning compliance issued at that time, until or unless some county action were to change that designation. [Back to top](#)

## HYDROLOGY SECTION

- **COMMENT:** Numerous comments expressed concerns regarding potential contamination to the shallow aquifer from fuels, fertilizers, pesticides, nutrients and degradation of water quality in the shallow aquifer (which includes domestic/drinking water use) from the proposed mining and asphalt plant. Often these concerns extended to potential impacts to Flathead Lake since the aquifer, river and lake have a close hydrologic connection.

**RESPONSE:** The DRAFT EA addresses precautions that would be taken to protect groundwater from contamination during mining, including handling of fuels and location of the asphalt plant. Accidental spills or leaks would be recovered and disposed of properly. A Groundwater Monitoring Plan and a Spill Contingency Plan will be required. Typically, a pattern of observation wells would be installed up-gradient and down-gradient of the plant and fuel storage site, and they would be monitored, and specific procedures established to react to any spills or contamination detected by monitoring. A two-foot absorbent pad and a plastic liner that would stop spills from entering the groundwater would underlie the asphalt plant. The absorbent material placed under the asphalt plant typically consists of crushed sand and gravel. It is easily available and if it is contaminated, it easily passes back through the hot plant itself allowing recycling on site and alleviating extra haulage and volumes of waste delivered to the landfill. [Back to top](#)

Following is a typical list of materials required to be kept on site in case of a spill from any source including operating equipment and fuel delivery trucks and fuel and lubricant storage areas. The list is based on the type and quantity of fuel and other hydrocarbon products located on site.

	Table 4-3
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	Required Spill Response Equipment
Quantity	Description
1 ea	15 GPM hand pump
1 ea	Shovel, non-sparking 3'2" round nose
1 ea	Shovel, non-sparking 5'2" scoop
1 ea	Shovel, non-sparking 5'2" scoop
3 ea	Broom (plush, straw, heavy duty)
3 ea	Handles
10 bags	Oil sorbent compound
2 rolls	12-mil PVC liner
3 ea	Drum assemblies (overpack 19 gal.)
3 ea	Drum assemblies (overpack 30 gal.)
3 ea	55 gal. or 57 gal. Overpacks
3 ea	Drum assemblies (overpack 85 gal.)
20 ea	Absorbent blankets
10 ea	Absorbent pigs/dams
5 bags	Dry sweep
1 ea	Intrinsically safe centrifugal pump
3 ea	Fire extinguisher
3 ea	Protective clothing
5 ea	Chemical resistant gloves
3 ea	Two-way radios
3 ea	Flashlights
2 ea	Mops, squeegees
10 ea	Plastic bags, heavy duty trash
1 ea	1,000-gallon plastic tank on trailer

An active gravel pit operated by JTL less than four miles south of and in a similar hydrologic setting as the proposed Pavco pit, uses five dedicated monitoring wells to monitor changes in water level and water quality at the site. The monitoring program, implemented in early 2002, indicates that water levels respond to seasonal variations and are not significantly affected by mining activities. Quarterly water quality samples from the site that are submitted to a lab for volatile petroleum hydrocarbon (VPH) and extractable petroleum hydrocarbon (EPH) analyses (both are EPA methods with concentrations measured in parts per billion (ppb)) have not shown concentrations above detection levels in wells down gradient of the asphalt plant. This suggests that an asphalt plant can be operated in this hydrologic setting without impacting water quality. [Back to top](#)

- **COMMENT:** Given the sensitive nature of the aquifer that underlies the proposed asphalt plant, there is no description of the proposed pad and liner separating the two.

**RESPONSE:** The DEQ will require a detailed, two-part plan to be submitted before the asphalt plant is installed. This plan will include specifications for the pad and liner as well as a Groundwater Monitoring Plan and a Spill Prevention and Contingency Plan. The monitoring program will require observation wells, regular monitoring and appropriate testing. The spill contingency plan will require planning and training to ensure that employees are familiar with the risks and able to react quickly if there were a release of petroleum products from the asphalt plant or from fuel handling. The plan would be similar to that which is in place at the JTL asphalt plant several miles to the south.

- **COMMENT:** What will the elevation change be at the mine sites (cumulatively)? The commenter also expressed concern for diminishing the "grounds ability to filter surface water".

**RESPONSE:** In the proposed pond area, mining would be approximately 30 feet deep. This would result in an elevation change from 2,960 feet MSL to 2,930 MSL feet in the deepest part of the pond. Elsewhere, mining is to remain one foot above the water table, which varies between 15 to 25 feet below the surface. The elevation of the water table is not expected to change in response to mining and the pond water level will reflect the water table level; however, water



levels would be monitored as part of a required groundwater monitoring program (see the section on Alternatives Considered below).

With regard to filtering capacity, the soil and strata overlying ground water acts to eliminate or moderate the concentration of some surface contaminants that might reach ground water. Decreasing the distance between land surface and the aquifer does increase risk of ground water contamination, as is true with naturally occurring ponds and lakes. Precaution would be taken during mining and reclamation to minimize the risk of potential contamination to groundwater.

- **COMMENT:** Gravel pits eliminate aquatic life in the aquifer and can reduce or destroy the natural cleansing process the aquifer and its biota have. The EA does not adequately evaluate potential impacts to water quality and the biota of the alluvial aquifer.

**RESPONSE:** Widely distributed and locally abundant invertebrate fauna have been documented in the interstices of the alluvial aquifer (Stanford and others, 1994) and appear to move freely between the aquifer and river. Where mining would extend below the water table, alluvium and any invertebrates within the alluvium would be removed. The area (five-acre pond) in which this would occur does not represent a substantial loss of aquifer volume and the relative abundance of invertebrates in this part of the aquifer would not be affected. Also, water quality is not expected to be significantly affected by the operation. See responses to comments above. However, a monitoring program of invertebrate fauna in conjunction with other new and expanding gravel mining operations in the vicinity may be warranted and required in the future.

- **COMMENT:** There is inadequate review of proposed settling ponds in relationship to the shallow aquifer.

**RESPONSE:** Settling ponds are associated with the wash plant. Water in the pond can be reused after fines (silt) settle. The settling ponds would be near the surface and would not be located in groundwater. As no chemical contaminants would enter the pond, infiltration of pond water to groundwater would not impair the quality of groundwater. Settling ponds associated with the wash plant would be typical of the industry and are used in nearby pits as well as pits across Montana. They are dug approximately 10 to 15 feet deep, consisting usually of two cells that allow the naturally occurring fine silt and mud to settle out of the discharge water from the wash plant. Everything from sand-sized particles and up is washed, sorted and collected as a product. The silt and mud is allowed to settle out in the bottom of the ponds, which are periodically cleaned out, and used as fill or overburden during reclamation. The water is allowed to infiltrate back into the ground as clean water, having had no chemicals or other additives introduced into it. The water re-enters the groundwater, which at this site lies approximately 10 feet below the bottom of the ponds.

- **COMMENT:** Devastating impacts to the local shallow aquifer would occur due to the risk of breaching the underlying clay layer that is bounded laterally by the Flathead and Whitefish rivers. Breaching the clay layer could disconnect the current groundwater-surface water exchange that defines this floodplain aquifer. Breaching the clay layer may also result in a significant loss of ground water for down gradient wells.

**RESPONSE:** Mining at the proposed Pavco site is expected to be no deeper than 30 feet and would stop when the clay layer that separates the shallow aquifer from deeper aquifers is reached. Gravel pit operators typically find the clay layer difficult to remove and therefore limit gravel recovery to the gravel above the clay layer.

- **COMMENT:** Numerous septic systems contribute to the nutrient load of the aquifer. Documented information regarding this nutrient loading should be reviewed in connection with the potential cumulative impacts of both mining and septic systems.

**RESPONSE:** Septic systems in the Kalispell Valley provide a much greater nutrient load to the aquifer than that expected from gravel mining. Sources of nutrients associated with mining would include soils and exposure of the pond surface to atmospheric nutrient fall-out (phosphorus and nitrogen). Soil would be placed along the edge of the pond but no soil would be placed in the proposed five-acre pond. Precipitation or dry fall-out of airborne nutrients onto a five-acre pond surface is expected to contribute relatively insignificant amounts of nutrients to the aquifer. Particulate phosphorus collected on filters in the Kalispell area (9/1/86 – 8/30/87) as part of an air quality study conducted by the Department of Health and Environmental Sciences (Raisch and Jeffry, 1988) was usually below the analytical detection limits.

- **COMMENT:** Excavations create disruptions in flow paths by removal of sand and gravel and create large impoundments of water that would otherwise flow down gradient into the Evergreen Aquifer. This disruption to the dilution and flow of nutrients from septic systems and to existing wells needs to be given additional review. When excavations are below the water table, water is essentially “stalled” in the impoundments. This “stalling” impacts water in

Trumble Creek and Spring Creek by creating portions of the channel that carry no water. A study of the waterless portions of these streams might prove that gravel pits adjacent to Flathead River have caused the lack of flow.

**RESPONSE:** There is no hydrologic reason that the direction and flow of groundwater in the aquifer would be modified significantly during mining or by the creation of a five-acre pond after mining. The surface water level in the pond would reflect water table levels and water would move downgradient through the pond. The flow rate and flow direction in the gravels up and down gradient of the pond are not expected to change significantly. Please see the discussion of cumulative impacts under SECTION 2. WATER QUALITY, QUANTITY, AND DISTRIBUTION below.

• **COMMENT:** Due to the relationship of the shallow aquifer and the river, discharges of water on the site resulting from proposed operations may need additional “conditioning”.

**RESPONSE:** There should be no discharges of water at the proposed site. Mining would be “wet”, meaning that gravel below the water table would be recovered under water. Any silt suspended in water during mining is expected to be filtered out by the aquifer over a short distance from the pit and would not reach the Flathead River. No contaminants to the aquifer are expected to be introduced from mining.

• **COMMENT:** Abandoned gravel pits are often the site of illegal dumping of waste and nonnative fishes.

**RESPONSE:** Such waste disposal would be prohibited on the site. The pits should never be “abandoned”. When the gravel operation is complete or no longer active, reclamation of the site would take place. Reclamation includes contouring disturbed surfaces, replacing topsoil, and revegetating all areas except the pond. It is certainly possible that illegal dumping of wastes or nonnative fish species in gravel mines or elsewhere (such as the Flathead River, Flathead Lake, or other streams or lakes) can occur, but DEQ cannot base its decision on this possibility. [Back to top](#)

• **COMMENT:** There is a need for a full EIS to adequately identify potential cumulative impacts on the Evergreen Aquifer, Flathead River and Flathead Lake. Impacts include existing and continued development of gravel resources in this aquifer and the continued conversion of this area to commercial and residential uses with inadequate review of the cumulative impacts of septic and stormwater runoff issues. A total acreage of gravel pit ponds should be made available for public review.

**RESPONSE:** The Opencut Mining Act provides that DEQ must make a permit decision within 60 days of receipt of a complete application. The Montana Supreme Court has held that a 60-day review period does not provide adequate time for preparation of an EIS and that, when DEQ is under a 60-day review requirement, the EIS requirement of the Montana Environmental Policy Act (MEPA) is not applicable. Furthermore, for permitting decisions for which the EIS provisions of MEPA are applicable, an EIS is required only when there are significant actual or potential impacts. DEQ has not identified any actual or potential hydrologic-related impacts that it believes are significant. (See SECTION 2 in the EA text below for discussion of cumulative hydrologic impacts.) DEQ acknowledges that there are other commercial and residential developments (present and future) that could have hydrologic-related impacts. DEQ does not expect the Paveco operation to make any significant contribution to those impacts.

See Cumulative Impacts in SECTION 2 in the EA text below for discussion of postmining pond acreage. [Back to top](#)

• **COMMENT:** The EA statement that local groundwater is recharged largely through a leaky irrigation ditch needs to be clarified in relationship to the overall hydrology of the area.

• **RESPONSE:** The Flathead River, and to a lesser extent the Whitefish River, are the main sources of recharge to the aquifer. Locally, agricultural irrigation seasonally may contribute some recharge to the aquifer via leaky irrigation ditches. The EA text under SECTION 2 below has been revised to reflect this situation.

• **COMMENT:** A proposed pond design includes use of 10 tons per acre manure for bottom cover in a wetland pond. The proposed pond description describes going to the clay level, while the fishery pond design included a gravel and sand bottom.

**RESPONSE:** There is no plan to use soil or manure in development and completion of the pond after mining.

- **COMMENT:** The open ponds created by this proposed mine will increase the temperature of the aquifer which may have consequences to threatened species, or to life within the aquifer itself.

**RESPONSE:** The pond is anticipated to be five acres in size and up to 30 feet deep. Factors affecting heating of pond water include the pond surface area and depth (and shape, to some extent), water volume, climate and flow rate of groundwater through the pond. Down-gradient effects to the aquifer would depend on the heat energy added to groundwater from the pond, as well as the temperature and volume of groundwater upstream and downstream of the pond. Some part, if not all, of heat energy gained in the pond would be lost with dilution of waters in the downstream aquifer.

As soon as groundwater enters the pond and is exposed to the atmosphere, heat exchange begins and temperatures trend toward air temperature. The warmest month in the Kalispell area is July, with an average high of 80oF (27oC). Mid- to late summer temperatures from wells in the shallow aquifers in the Kalispell Valley (reported by Noble and Stanford (1986)) generally range between 48 oF (9oC) and 59 oF (15oC) or higher, but on average are from 50 oF (10oC) to 52 oF (11oC). Stanford et al. (1994) report annual temperature fluctuations in research wells in the Kalispell Valley aquifer between 43 oF (6o C) and 52 oF (11o C), with temperatures in the Flathead River ranging from 36 oF (2o C) to 68 oF (20o C) annually.

Considering the relatively high rate of flow in the aquifer (Noble and Stanford, 1986), the relatively moderate air and aquifer temperatures in the Kalispell area and the depth of the ponds, thermal heating in the existing and proposed pit ponds would not be expected to be strong nor the effect long-lasting. Dilution of pond water as it flows into and through downgradient groundwater would attenuate heat gained in the ponds.

Given the above information, no measurable thermal effects to groundwater outside the immediate area of the pond would be anticipated. However, empirical evidence gathered by monitoring water temperatures over time in the ponds and in the aquifer downgradient of the ponds would more specifically address questions and concerns regarding this issue, especially as the proposed number and total surface area of ponds increase. The required groundwater monitoring plan would include temperature. [Back to top](#)

IMPACTS ON THE PHYSICAL ENVIRONMENT	
RESOURCE AND EXAMPLE/GUIDANCE QUESTIONS	POTENTIAL IMPACTS AND MITIGATION MEASURES
<b>1. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:</b> Are fragile, compactible or unstable soils present? Are there unusual geologic features? Are there special reclamation considerations?	<p>The proposed mine is located in fairly flat terrain formed by an old river terrace above the Flathead River. The deposit consists of water-worked glacial debris overlying deeper valley bedrock. The site is currently used as an alfalfa hay field.</p> <p>Soil, which is 12 inches thick in the general area, has been somewhat damaged in the past on the north end by a post and pole operation and a small ¼-acre gravel pit. Soils are still salvageable from under the pole operation.</p> <p>Soils would be salvaged and stockpiled away from the pit, road and facility area. Following mining, grading and ripping, the soils would be replaced, disked and seeded to grass around the pond and probably farmed for grain in the larger areas. There are no fragile, compactible or unstable soils present, no unusual geologic features and no special reclamation considerations.</p>
<b>2. WATER QUALITY, QUANTITY AND DISTRIBUTION:</b> Are important surface or groundwater resources present? Is there potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality?	<p>The general area overlays a fast-moving and high quality aquifer. A relatively high (within 12 feet of the surface) water table exists in the area of the proposed gravel pit. The water table is recharged mainly by the Flathead River.</p> <p>There are 22 water wells registered in section 2, with an average depth of 30 feet, average static water level of 12 feet and an average yield of 115 gallons per minute. There are 68 water wells registered in sections 35 and 36 to the north, with an average depth of 99 feet, average static water level of 31 feet and an average yield of 60 gallons per minute. The wells in this area are a mix of domestic drinking water, public water supplies, commercial, irrigation and stockwater wells. These wells are relatively shallow, and they have high yields. This operation would intercept groundwater in order to create a pond,</p>

and would have no discharge into flowing surface water. The Flathead River, and to a lesser extent the Whitefish River, are the main sources of recharge to the aquifer. Locally, agricultural irrigation seasonally contributes recharge to the aquifer via leaky irrigation ditches that pass by the ponds, and since there are no water wells down-gradient from the ponds, there will be no drawdown of the water in any water source wells.

Special precautions would be taken to minimize possible contamination of the groundwater. No bulk fuel would be stored onsite. Portable equipment with fuel tanks such as loaders and trucks would be in various places within the facility. Any accidental spills or leaks from equipment would be excavated and disposed of. The asphalt plant would be underlain by a two-foot absorbent pad and a plastic liner that would stop any accidental spills from entering the groundwater. No waste or trash would be disposed of at the site. With these precautions, the quality and quantity of the groundwater should not be adversely impacted.

### **Cumulative Impacts**

Five gravel mining operations, including the proposed Paveco operation, occupy a permitted or proposed permitted area of slightly more than half a square mile within Sections 36 and 2. Approximately 31 acres of post-mining pond area is currently approved or proposed among these five operations. An additional 17 acres of post-mining pond area have been requested under pending amendment applications. Final total pond area among these five operations would likely increase to between 100 to 150 acres by the time mining is complete, under the long-term plans of these operations. Potential cumulative impacts from post-mine ponds for existing permits and pending amendment applications (approximately 48 acres) are discussed below.

Water levels: Given the high yield of the shallow Kalispell aquifer, water level or flow rate is not likely to be significantly affected by the post-mine ponds. Increasing pond surface area will increase evaporation but should not measurably affect aquifer water levels. Domestic well supply in the vicinity of the ponds should not be diminished.

Springs: Unless removed during mining, springbrooks which result from the natural upwelling of groundwater should not be disrupted by the presence of the ponds, as seasonal aquifer water levels will not be significantly changed.

Flow patterns: Depending upon the gradient of the water table, a large pond would be more likely to influence local flow patterns than small ponds. Expansion of pond areas may need to take into account potential influences on local flow patterns. However, the pit ponds will not significantly influence general flow direction.

Heating: Increased pond surface area may affect ground water temperature due to heating in the pond from exposure to sun and ambient air temperatures. High transmissivity of the Kalispell aquifer, moderate ambient air temperatures in the Kalispell Valley, depth of the ponds and mixing with down gradient ground water make significant heating of the aquifer or river unlikely. Studies indicate that pit ponds have minimal impacts on ground water temperatures and that these minor effects are dissipated within tens to hundreds of meters of the pit (Ostrander et al, 1998). Monitoring for potential thermal changes downgradient of the pit ponds as they develop could help in estimating cumulative impacts in the Kalispell aquifer and Flathead River.

Aquatic life: Removal of gravel also removes fauna interstitial to floodplain gravels. Study shows that distribution and abundance of these interstitial animals is determined by habitat variables within the aquifer (Ward et al,

	<p>1994). Studies regarding changes in faunal distribution patterns, abundance and changes in habitat caused by open pit mining and potential effects to Flathead River biota have not been undertaken and therefore, the cumulative impacts are difficult to predict. Given the size of the Kalispell aquifer (approximately 40 square miles) and the wide distribution of interstitial fauna within the aquifer, removal of 48 (or even 150) acres of the aquifer would be expected to affect only a small portion of the population. More data would need to be gathered to more precisely address this impact.</p> <p><u>Water quality:</u> The greatest potential for contamination during mining is associated with the use of petroleum products for fuels, lubricants and asphalt production. Measures are taken at each mine site to prevent likely introduction of petroleum products to ground water (See discussion above in this section). Upon completion of mining, land surrounding post-mining ponds will be soiled and seeded to stabilize areas adjacent to the pond and decrease the likelihood of soil-borne surface contaminants (e.g. nutrients) washing into the pond. Post-mining ponds are anticipated to be in low-intensity agricultural and residential settings and add recreational opportunities to local residents. Although the presence of natural or constructed ponds may increase the vulnerability of shallow groundwater to surface contamination, the setting of these ponds should decrease the likelihood of significant surface contamination from land uses.</p>
<b>3. AIR QUALITY:</b> Will pollutants or particulate be produced? Is the project influenced by air quality regulations or zones (Class I airshed)?	Air quality would be degraded at times and there would be an increase in particulate matter during times of operation. Dozers, loaders, crushers, asphalt plants and trucking equipment typically cause dusty conditions in disturbed soil sites. Dust would be controlled around the site by water truck, and dust suppressant and paving would be applied to the road. The site is not within a Class I airshed.
<b>4. VEGETATION COVER, QUANTITY AND QUALITY:</b> Will vegetative communities be permanently altered? Are any rare plants or cover types present?	There are no known rare or sensitive plants in the site area. Vegetation consists of grain and pasture grasses, and covers 80% of the ground. It would be removed and planted with grass species or grain compatible with the proposed reclaimed use. There are no rare plants or cover types present.
<b>5. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:</b> Is there substantial use of the area by important wildlife, birds or fish?	Although the area is used primarily for grain and hay production, it also supports populations of deer, elk, bears, rodents, song birds, coyotes, foxes, raptors, insects and various other animal species. Population numbers for these species are not known. The proposed mine is not expected to significantly degrade wildlife populations.
<b>6. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:</b> Are any federally listed threatened or endangered species or identified habitat present? Any wetlands? Species of special concern?	The Natural Heritage Program and site evaluations have not revealed any endangered or threatened plant or animal species that would be directly affected.
<b>7. HISTORICAL AND ARCHAEOLOGICAL SITES:</b> Are any historical, archaeological or paleontological resources present?	Although there are cultural values in the general area, much of this site has been previously disturbed by modern man by logging and farming, thus destroying the integrity of resources that may have existed. A historical schoolhouse is located adjacent to this site and would not be disturbed. A surface reconnaissance did not discover any cultural, historical or archeological resources. The operator would give appropriate protection to any values or artifacts discovered in the affected area. If significant resources are found, the operation would be routed around the site of discovery for a reasonable time until salvage could be conducted. The State Historic Preservation Office would be promptly notified.
<b>8. AESTHETICS:</b> Is the project on a prominent topographic feature? Will it be visible from populated or scenic areas? Will there be excessive noise or light?	<p>The site is located in a scenic, but not unique area. There would be a temporary deterioration of aesthetics while the operation was under way. However, reclamation would return the area to a visually acceptable landscape. This project is considered to be long-termed, i.e., planned to take 20 years to complete.</p> <p>The site is visible by homes and roads in the local area. Hours of operation for</p>

	<p>the site would generally be 7:00 am to 7:00 pm, Monday through Friday.</p> <p>Noise levels generated by a crusher, asphalt plant, dozers, loaders and truck traffic hauling to off-site projects at the pit are generally within the range of 60 to 90 decibels measured on-site, decreasing with distance. As a comparison, sound levels for ordinary activities such as close conversation at 60 decibels and music from a radio at 70 decibels are considered to be moderate. Levels above 90 decibels are severe, and prolonged exposure to employees on site without hearing protection could lead to hearing loss.</p>
<p><b>9. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:</b> Will the project use resources that are limited in the area? Are there other activities nearby that will affect the project?</p>	<p>There are no unusual demands on land, water, air or energy anticipated as a result of this project.</p>
<p><b>10. IMPACTS ON OTHER ENVIRONMENTAL RESOURCES:</b> Are there other studies, plans or projects on this tract?</p>	<p>There is concern in this area by Glacier Park International Airport about the activities of waterfowl and what possible risks creating attractive, open water bodies by gravel mining operations might have on aircraft flight around the runways. There have been no local studies that have investigated this situation. However, DEQ searched for and examined information available elsewhere on this issue, as well as evaluating habitat factors near the Glacier Airport, resulting in the following assessment.</p> <p style="text-align: center;"><b><u>Overview</u></b></p> <p>Aircraft collisions with wildlife (wildlife strikes) are recognized in the aviation community to be a substantial hazard. For the 14-year period of 1990 through 2003, there were 52,493 wildlife strikes reported nationally, of which 97.4 percent involved birds (Cleary et al. 2004). Wildlife strike costs amount to approximately 456,000 hours of aircraft downtime and \$194.5 million. According to Federal Aviation Administration (FAA) reports, only 20 percent of all bird strikes are reported annually.</p> <p>Due to the nature of aircraft operation (i.e. flight) most occurrences of wildlife strike take place between avian species (birds) and aircraft. Bird strike reports increased annually over the 14-year period to plateau at approximately 6,000 incidences per year after 2000 (Cleary et al. 2004), with about 6,100 incidences reported for 2004 (Bird Strike Committee-USA). The increase in reports can be attributed to several factors, including increased bird populations, increases in flight transportation, development of quieter plane engines, and increased awareness and reporting by the aviation community. The plateau can be attributed to a decrease in flight activity following September 2001, and more aggressive wildlife management and mitigation at airports due to increased awareness of wildlife strikes.</p> <p>Records of wildlife strikes are submitted to the FAA using FAA Form 5200-7 or via their website <a href="http://wildlife-mitigation.tc.faa.gov">http://wildlife-mitigation.tc.faa.gov</a>. The strike records are categorized in degree of damage to aircraft from none to destroyed. Many reports are submitted without assessment of the aircraft damages. However, of the reports with assessment value, it is evident that damages can be significant. There were 51,145 bird strike reports in the 14-year period and 42,822 reported the extent of damage. Of these 42,822 reports, 84 percent indicated no damage; 9 percent indicated minor damage; 4 percent indicated substantial damage; 3 percent reported an uncertain level of damage; and less than one percent indicate the aircraft was destroyed. The reports indicated that 103 bird strikes resulted in 124 human injuries and 6 strikes resulted in 8 human fatalities. Only 1,637 reports indicated the direct cost of damages, which totaled approximately \$169 million and averaged \$103,265 per incident (Cleary et al. 2004).</p> <p><b><u>Attractants</u></b></p>



FAA Advisory Circular (FAA AC) 150/5200-33A (Federal Aviation Administration 2004) addresses land uses that attract wildlife and create hazards to airports and air-traffic operations. Land use features around an airport are significant factors regarding the wildlife strike hazard. Features such as waste management and water management facilities (i.e., landfills and sewage treatment operations), wetlands, dredge spoil containment areas (i.e., disposal site for dredged materials), agricultural activities, golf courses, and landscaping are the major categories in the FAA AC.

Synergistic effects can be created when a new land use is developed close to an airport. Creating a pond on one side of an airport while food sources exist on the other side falls under the category of a synergistic effect. The pond itself may only attract a few animals; however, if it becomes a nesting or dabbling (e.g. bathing, resting) ground to access the food source, this creates a concentration of birds with a flyway across the airport.

#### Munich Airport Assessment

The Munich Airport (Germany) was developed in an area with gravel mining below the water table as is the case adjacent to Glacier Park International. Bird strikes were considered higher in zones directly in the takeoff and approach paths of planes in a study developed around the Munich Airport (Morgenroth). A buffer of 2,000 meters was established in these flight zones. Within this buffer, gravel mining with ponds of restricted size during operations was allowed, but no postmining ponds were allowed. Additionally, the surface area of the ponds was limited in zones in all other directions of the runways. After implementation, the Munich Airport noticed decreases in bird strike during the period of 1992-2000.

#### Paveco and Other Operations

Five adjacent gravel mining operations, including the proposed Paveco site, would occupy a permitted area of slightly more than half a square mile within Sections 36 and 2. These operations are located across Highway 2 from Glacier Park International Airport (Map 2). Approximately 31 acres of post-mining pond area are currently approved or proposed among these five operations. An additional 17 acres of post-mining pond area have been requested under pending amendment applications.

Using a 10,000-foot radius, as suggested in the FAA AC, around Glacier Park International as a target buffer zone of interest, the surface water ponds and channels were identified around Glacier Park International Airport. Ponds were digitized on the 2004 aerial photograph (Map 2), and streams were queried from the USGS NHD Geodatabase. Approximately 6.2 acres of non-mine related ponds, 16.1 acres of gravel mine-ponds, and 45 miles of stream and river channels are identifiable on the photo (Map 2).

The approved post-mining ponds will approximately double the current extent of such ponds when the 31 acres are completed. If the additional 17 acres of proposed were approved, along with more requests likely, the ponded area could increase substantially. Nearly 26 acres of gravel mine ponds are planned for fish habitat, while the other gravel mine pond area has no description. Most of the areas around the ponds are slated for some type of agriculture -- either grain, hay, or pasture.

The airport is situated between two rivers that appear to contain much more desirable waterfowl habitat than will be created by gravel mining. Over 4 miles of the Whitefish River run within 10,000 feet of the west side of the runway. With an average width of approximately 70 feet, it creates at least 34 acres of natural waterfowl habitat. The Flathead River adds a substantial acreage of natural habitat slightly east of the 10,000 foot zone, with 17.5 acres

of river area within the 10,000 foot zone. Additionally, inside the 10,000 foot zone the Gooderich Bayou adds approximately 11 acres of natural waterfowl habitat. These three water bodies contain 62.5 acres of natural habitat.

Also, there is potential additional habitat in the form of unnamed streams within 10,000 feet of the airport. Assuming the unnamed streams are an average of 5 feet wide and have water in them for a substantial part of the year, approximately 23 acres of stream channel area occur in this zone. If the same unnamed streams are assumed to be 10 feet wide, 45.5 acres of stream channel area are within the 10,000 foot radius. These drainage channel lengths are derived using stream reach lines from the USGS NHD Geodatabase, and when draped on the photo they appear to be slightly straighter than the actual channels. Thus the acreage estimates above are considered conservative.

#### Conclusions

Glacier Park International is situated adjacent to five existing and proposed gravel mining operations with a gravel resource located below the water table and attractive to the mine industry due to local demand. There is a sixth operation on Map 2 that is not considered in this report. Some of the operators have requested establishment of ponds as part of their final reclamation. The other operators may consider ponds or small lakes as final reclamation in the future. The permitted ponds will almost double the extent of ponded area within the FAA-suggested, 10,000-foot-buffer zone.

One important consideration in constructing a water body around an airport is its orientation to the runway. The German study found that not constructing ponds directly in the take-off and approach paths of planes helped decrease the incidence of bird strikes. Other factors contributing to bird strikes to consider are food sources and their proximity to water bodies around a runway.

All of the gravel operations are slightly out of the direct path of take-off and approach of the aircraft runways, except for portions of the proposed Paveco permit area, which is situated such that its southern extent is in the flight path of the small aircraft runway and within the FAA-suggested, 5,000-foot buffer for this kind of runway. All of these signs point to limiting the extent of ponds developed in these mining operations if the factors of native waterfowl habitat and food sources are not considered. There is the potential of 48 acres or more of postmining ponds. However, the two rivers and the streams within 10,000 feet of the airport create an estimated 85-100 acres of real or potential native habitat in all directions from the airport. Additionally, considering food sources, the dominant land use within this 10,000-foot zone is agriculture, another attractant for birds. The distribution of both native and artificially created waterfowl habitat and food sources around the airport indicates a complex mosaic of real and potential habitat that does not provide a clear picture of risk to aircraft of waterfowl behavior.

Due to the possibility that any new water bodies could potentially attract birds, the creation of new ponds cannot be ignored. Limiting the amount of exposed water is the safest alternative. However, the ponds will likely not be the most attractive habitat, and during mining, unattractive. Completion of mining for these permits will occur in the time period from 2015 to 2022. In the next 10 – 20 years, land uses within this area may change due to the expected continuation of high growth and development in the valley, and the ponds may be more or less desirable, depending on the nature of such land use changes. Therefore it is recommended at this time that areas closest to the flight paths be limited in pond development and a program be set up to monitor waterfowl activity around the airport and the mines, as well as changes in the level of bird strikes.

IMPACTS ON THE HUMAN POPULATION	
RESOURCE	POTENTIAL IMPACTS AND MITIGATION MEASURES
<b>11. HUMAN HEALTH AND SAFETY:</b> Will this project add to health and safety risks in the area?	Heavy equipment and facilities including crushers, trucks and loaders will create hazards, but the operator must comply with all MSHA and OSHA regulations. The operator must employ proper precautions to avoid accidents.  Excessive and prolonged noise and light could increase stress for nearby residents and induce difficulty sleeping, but ongoing operations are not planned for nighttimes. This proposed operation should not significantly affect human health.
<b>12. INDUSTRIAL, COMMERCIAL AND AGRICULTURAL ACTIVITIES AND PRODUCTION:</b> Will the project add to or alter these activities?	The acreage listed in the Type and Purpose of Action would be taken out of agricultural use and put into industrial/commercial use. Upon completion of mining, the land would be reclaimed to a pond and grain field.
<b>13. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:</b> Will the project create, move or eliminate jobs? If so, estimated number.	Existing employees would mainly be utilized for this operation. There is low potential that this project would create a significant number of new jobs.
<b>14. LOCAL AND STATE TAX BASE AND TAX REVENUES:</b> Will the project create or eliminate tax revenue?	Additional taxes may be generated for the county and state in the form of income to the applicant and fuel and highway taxes paid by hauling equipment.
<b>15. DEMAND FOR GOVERNMENT SERVICES:</b> Will substantial traffic be added to existing roads? Will other services (fire protection, police, schools, etc) be needed?	The operation would require periodic site evaluations by DEQ staff until such time as the site is successfully reclaimed to the required post-mining use. However, these evaluations are usually performed in conjunction with other area operations.
<b>16. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:</b> Are there State, County, City, USFS, BLM, Tribal, etc. zoning or management plans in effect?	City/County zoning clearance has been obtained.
<b>17. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:</b> Are wilderness or recreational areas nearby or accessed through this tract? Is there recreational potential within the tract?	No wilderness or recreational areas are nearby or accessed through this tract.
<b>18. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:</b> Will the project add to the population and require additional housing?	The project would not add to the population or require additional housing.
<b>19. SOCIAL STRUCTURES AND MORES:</b> Is some disruption of native or traditional lifestyles or communities possible?	The area has generally undergone increasing commercial and homesite development in the recent past. The area just north along Jellison Road has seen several large gravel pit operations go in during the past 10 years as well as a trailer subdivision. This proposal would add yet another gravel pit to the growing number in the area. The traditional land use has been agricultural, but the area is also underlain by a high quality deposit of sand and gravel. It is predictable that development of the resource would occur.
<b>20. CULTURAL UNIQUENESS AND DIVERSITY:</b> Will the action cause a shift in some unique quality of the area?	This area is gradually shifting from agricultural to commercial and residential.
<b>21. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:</b>	

Alternatives Considered:

- A. Denial:** The pit would not be permitted and the owner of the gravel resource would be denied full utilization of his property at this time. However, another application could be submitted to revise the existing plan, or an application could be submitted for another site.
- B. Approval of the application with mitigating conditions:** The Plan of Operation has been written with mitigating conditions including hours of operation, water protection, soil salvage and full reclamation. Also, the following mitigations

are proposed as conditions of approval to be attached to the permit for this site.

1. Within 90 days of permit approval, Russell Olsen must consult with DEQ to develop and submit a plan for groundwater monitoring for review and approval by DEQ. This plan must include collection of water level and water quality data to monitor any effects of the mine and/or the asphalt plant on water levels, chemistry, and temperature. This plan must be implemented in a timely manner after DEQ approval.
2. In association with Glacier International Airport, other operators in the vicinity, and DEQ, Russell Olsen must participate in the development and implementation of a waterfowl monitoring/hazard mitigation plan.
3. A Spill Contingency Plan must be submitted to and approved by DEQ prior to construction of the asphalt plant.

Public Involvement, Agencies, Groups, or Individuals contacted:

State Historic Preservation Office, Montana Heritage Program, Flathead County Weed Control District, Flathead County Planning for zoning, Montana Department of Agriculture, US Fish & Wildlife Service, Montana Fish, Wildlife & Parks, Glacier International Airport, Federal Aviation Administration. The DRAFT Environmental Assessment was distributed to the public on March 24, 2005 for comments. DEQ received 11 written responses via email and postal delivery, and the responses are included above.

Other Governmental Agencies with Jurisdiction, List of Permits Needed:

Mine Safety and Health Administration for safety permit; DEQ for Air Quality Permit.

Magnitude and Significance of Potential Impacts:

Impacts are unlikely to be significant on the general environment because of the scope and location of the project, the lack of significant or threatened wildlife or habitat, and because of the mitigation measures placed in the Plan of Operation and proposed to be attached to the permit as conditions of approval.

Regulatory Impact on Private Property:

The analysis conducted in response to the Private Property Assessment Act (PPAA) indicates no impact is expected on the use of private property. The Department does not plan to deny the application or impose conditions that would restrict the use of private property so as to constitute a taking. See attachment for PPAA checklist assessment.

References cited:

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- Morgenroth, C. Recommendations for the Official Approval of Gravel Excavations Below Groundwater Level with a View to Bird Strike Prevention. Prepared for German Bird Strike Committee.
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**Ward, J.V., J.A. Stanford and N.J. Voelz. 1994. Spatial Distribution Patterns of Crustacea in the Floodplain Aquifer of an Alluvial River. Hydrobiologia, 287: 11-17.**

RECOMMENDATION FOR FURTHER ENVIRONMENTAL ANALYSIS:

☐ EIS

☐ MORE DETAILED EA

☒ NO FURTHER ANALYSIS

INDIVIDUALS OR GROUPS CONTRIBUTING TO THIS EA: Angela McDannel, Reclamation Specialist  
(Groundwater Hydrology); Julian Calabrese,  
Reclamation Specialist (Soils)

Written By: **Rod Samdahl, Reclamation Specialist**

(Signature)

Approved By: \_\_\_\_\_

(Signature)

Date: \_\_\_\_\_

OWNER: RUSS OLSEN

ADDRESS: 2820 HELENA FLATS ROAD, KALISPELL, MT.

PHONE: 406-752-0051

# Map 1 PAVECO PIT

NW 1/4, Section 2, T29N R21W, P.M., M.  
Flathead County, Montana

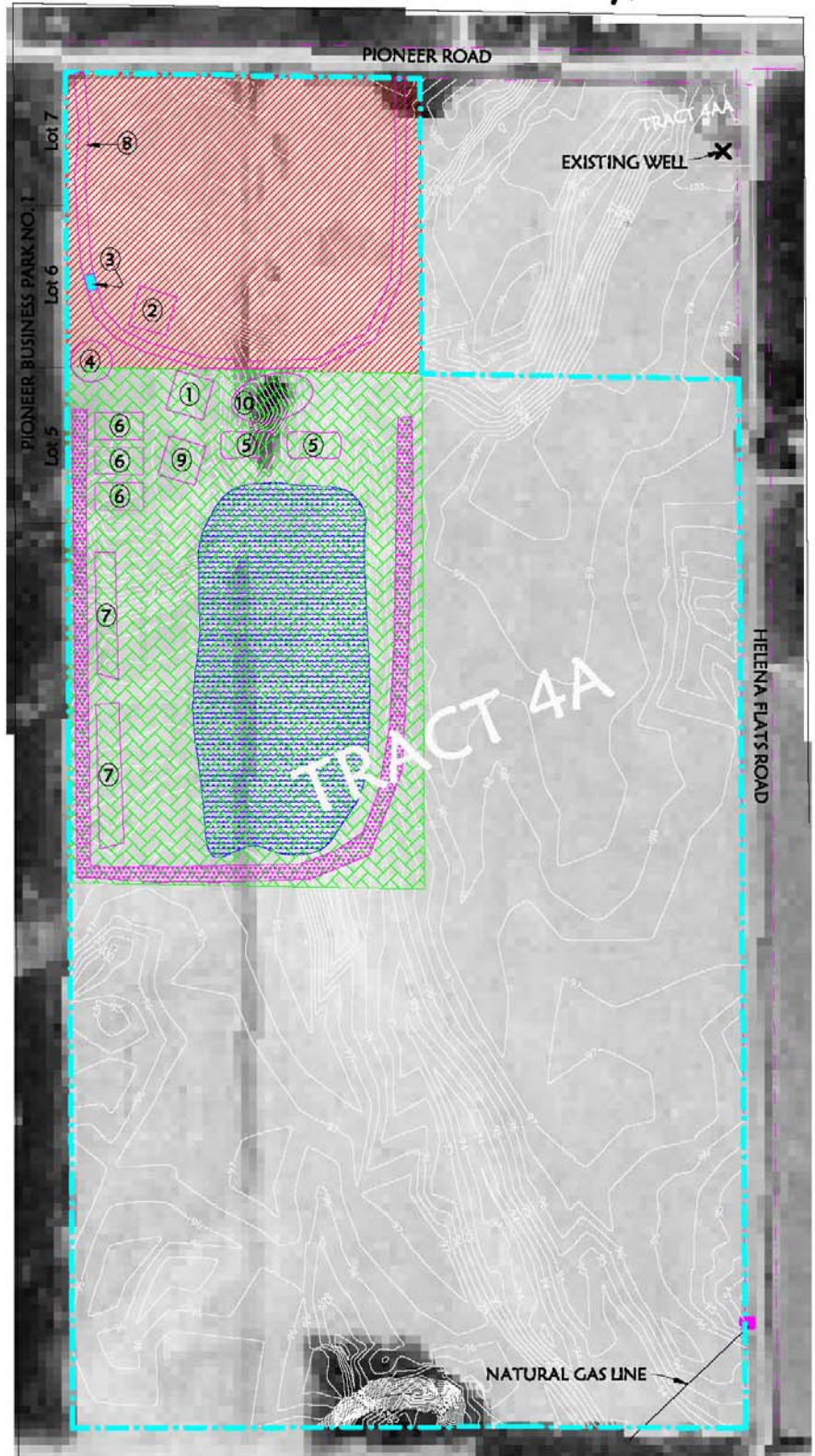
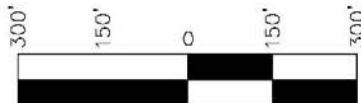
NOTES:  
PHOTO CIRCA 1990  
CONTOURS BASED ON SURVEY OF  
EXISTING GROUND (03/2002)

## LEGEND

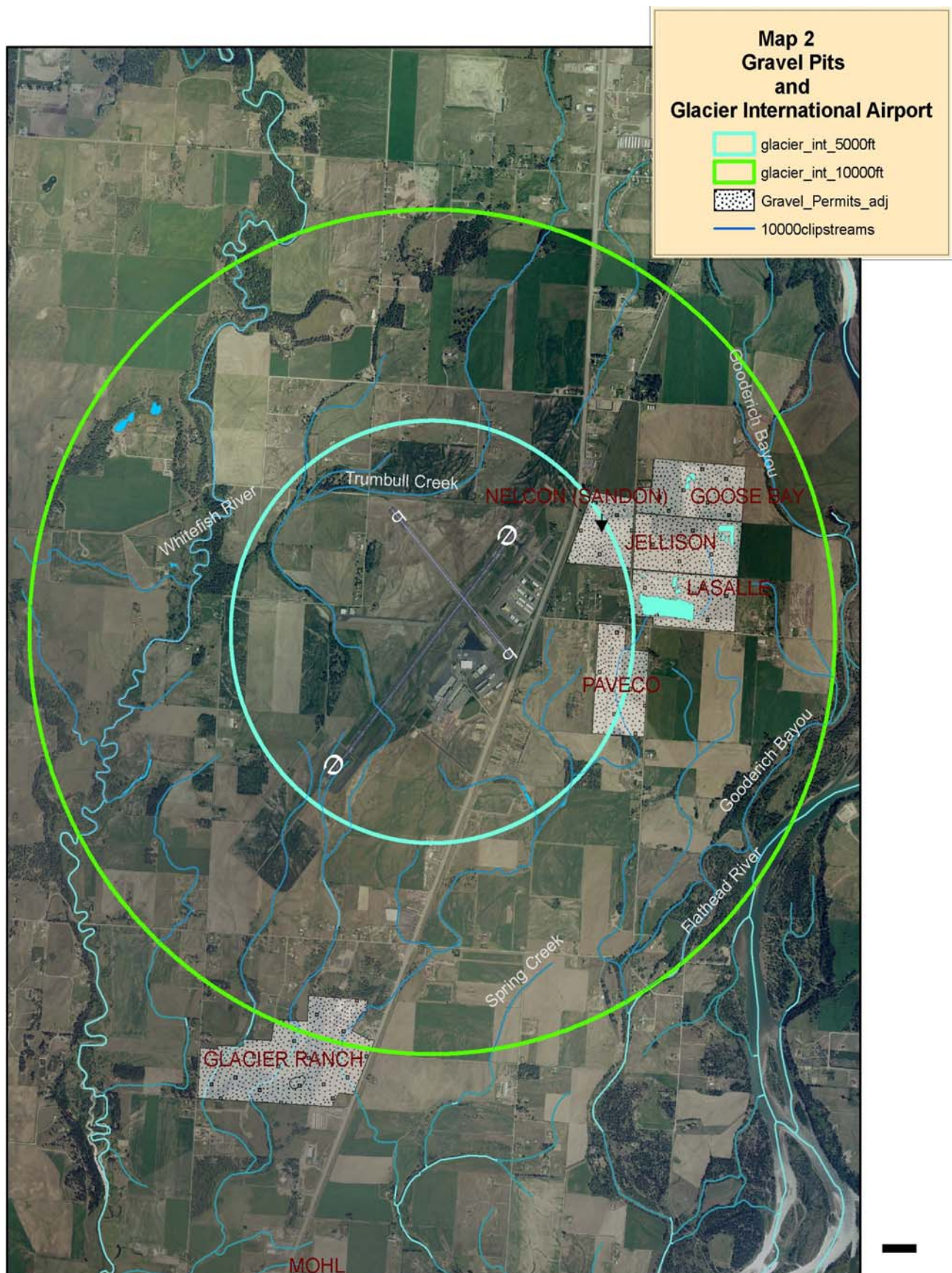
-  PERMIT BOUNDARY: 68.9 ACRES
-  ACTIVE MINE AREA: 15.5 ACRES
-  POND AREA: 5.0 ACRES
-  FACILITY AREA: 8.9 ACRES
-  TOP SOIL
- ① CRUSHER
- ② FUTURE HOT PLANT LOCATION
- ③ SCALE
- ④ SAND PILE
- ⑤ SETTLING POND
- ⑥ STOCK PILE
- ⑦ OVERBURDEN AREA
- ⑧ HAUL ROAD ( $\pm 20'$  BY  $\pm 1600'$ )
- ⑨ WASH PLANT
- ⑩ EXISTING GRAVEL PIT



SCALE: 1" = 300'







By: Julian Calabrese 3/7/06